# APPRO WH300 Workstation

## User's Guide

**Revision 2.0**

***Rev. 2.0***
***1/23/06***

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Chapter 1

# Introduction

## 1.1 Overview

**The Appro WH300** workstation is designed for the power-user. It offers excellent performance, system expandability, speed and efficiency when working with demanding compute-intensive applications. It delivers two x16 PCI Express graphics capabilities for content creation, animation, 3D modeling and CAD to meet all your design and analysis needs. It provides robust memory and storage in a flexible pedestal design.

The workstation supports the requirements of the most demanding professional users of advanced 3D workstations. This workstation is ideal for complex and demanding graphics applications such as Mechanical Computer Aided Design (MCAD) and Engineering (MCAE) for automotive and aerospace, petroleum exploration and production, scientific visualization, designers, digital content creation artists, 3D modeling and CAD.

The Appro WH300 workstation runs 32-bit applications faster while you migrate to 64-bit computing for long-term investment protection. This dual AMD Opteron™ processor workstation platform is expected to help users increase project productivity through exceptional application, visualization and data-throughput at outstanding price to performance ratio.

## 1.2 Features

- Dual AMD Opteron™ processors
- Up to 16GB of random access memory
- Two x16 PCI Express slot graphics capabilities
- FDD and CD/DVD drive options
- Up to 6 internal, fixed HDDs
- Optional 6x hot-swap SCSI kit or 6x SATA hot-swap kit
- Supports ATi®, Nvidia and other graphics solutions
- Choice of Windows or Linux operating systems

## 1.3 Specifications

| | **WH300** |
|---|---|
| Processors | Dual AMD Opteron™ processors |
| Chipset | NVIDIA nForce™ Professional 2200/2050 + AMD 8131 PCI-X Tunnel |
| Memory Type | Registered ECC DDR 333/ 400 |
| Memory Capacity | Up to 16GB in 8 DIMM sockets |
| Floppy-Drive | 1.44MB FDD (optional) |
| CD ROM | CD/DVD ROM (optional) |
| Disk Controller | Single Channel ATA-133 controller<br>Two integrated dual port SATAII controller |
| Drive Bays – Int. | Up to 6 internal, fixed HDDs – SATA, SCSI<br>6x hot-swappable SCSI kit or 6x hot-swappable SATA kit |
| Drive Bays – Ext. | 2x 5.25” external drive bays, 1x 3.5” external drive bay |
| Maximum<br>Storage Capacity | 3.0TB SATA, 1.8TB SCSI |
| Graphics | N/A |
| Network Interface | Two IEEE 820.3 NVIDIA MAC Gigabit Port |
| Input/Output | One serial port, one 1394 port, four USB ports, KBD/MIC, audio |
| Expansion Slot | Two x16 PCI-E slot, one 64bit/133MHz PCI-X slot<br>Two 64bit/100MHz PCI-X slots, one 32bit/33MHz PCI slot |
| Power Supply | 110-220VAC,auto-sensing, 600W single, fixed PS |
| AC Amperage | 10A at 110VAC; 5A @ 220VAC |
| Cooling | Two system fans |
| Weight | Installed: 30-50 lbs., Shipping: 55 lbs. max. |
| Dimensions | 17.8”H x 9.3”W x 19.0”D<br>(452mm x 236mm x 483mm) |
| Temperature | Operating: 10ºC to 35ºC<br>Storage: 70º C max. |

Chapter 2

# Important Safety Information

Only a technically qualified person shall access, integrate, configure, and service this product.

## 2.1 Intended Application Uses

This product was evaluated as Information Technology Equipment (ITE), which may be installed in offices, schools, computer rooms, and similar commercial type locations. The suitability of this product for other Product Categories and Environment (such as medial, industrial, alarm systems, and test equipment), other than an ITE application, may require further evaluation.

## 2.2 Safety Instructions and Information

To avoid personal injury or property damage, before you begin installing the product, read, observe, and adhere to all of the following safety instructions and information. The following safety symbols may be used throughout this product guide, and may be marked on the product and or its packaging.

**Table 1. Safety Symbols**

| | |
|---|---|
| **CAUTION** | Indicates the presence of a hazard that may cause minor personal injury or property damage if the CAUTION is ignored. |
| **WARNING** | Indicates the presence of a hazard that may result in serious injury or death if the WARNING is ignored. |
| | Indicates potential hazard if hazard symbol is ignored. |
| | Indicates shock hazards that result in serious injury or death if safety instructions are not followed. |
| | Indicates hot components or surfaces. |
| | Indicates do not touch fan blades, may result in injury. |

## 2.3 Checking the Power Cord

### CAUTION

*To avoid electrical shock, check the power cord(s) that will be used with the product:*

- *Do not attempt to modify or use the AC power cord(s) if they are not the exact type required.*
- *If a power cord is not compatible with the AC wall outlet in your region, get one that meets the following criteria:*
  - *The power cord must be properly rated for the AC voltage in your region.*
  - *The power cord plug cap must have an electrical current rating that is at least 125% of the electrical current rating of the product.*
  - *The power cord plug cap that plugs into the wall socket-outlet must have a grounding-type male plug designed for use in your region.*
  - *The power cord must have safety certifications for your region, and shall be marked with the certification markings.*
  - *The power cord plug cap that plugs into the AC receptacle on the power supply must be an IEC 320, sheet C13, type female connector.*
  - *In Europe, the power cord must be less than 4.5 meters (14.76 feet) long, and it must be flexible <HAR> (harmonized) or VDE certified cordage to comply with the chassis' safety certifications.*
- *The power supply cord(s) is the main disconnect device to AC power. The socket outlet(s) shall be near the equipment and shall be readily accessible for disconnection.*

## 2.4 Earth-Ground Socket Outlets

### CAUTION

*To avoid electrical shock, the system power cord(s) must be plugged into socket-outlet(s) that is provided with a suitable earth ground. The system will be provided with the following marking:*

*Connect only to properly earthed socket outlet.*

## 2.5 Before You Remove the Access Covers

**CAUTION**

*To avoid personal injury or property damage, the following safety instructions apply whenever accessing inside the product:*

- *Turn off all peripheral devices connected to this product.*
- *Turn off the system by pressing the power button on the front of the product.*
- *Disconnect the AC power by unplugging all AC power cords from the system or wall outlet.*
- *Disconnect all cables and telecommunication lines that are connected to the system.*
- *Retain all screws or other fasteners when removing access cover(s). Upon completion of accessing inside the product, refasten access cover with original screws or fasteners.*
- *Do not access inside power supply. There are no serviceable parts in the power supply.*
- *Return to manufacturer for servicing.*

## 2.6 Fans

**CAUTION**

*To avoid injury do not contact moving fan blades.*

## 2.7 Electrostatic Discharge (ESD)

### CAUTION

*Perform the procedures in this product guide only at an electrostatic discharge (ESD) workstation, because the server components can be extremely sensitive to ESD. If no such station is available, you can reduce the risk of electrostatic discharge ESD damage by doing the following:*

- *Wear an antistatic wrist strap and attach it to a metal part of the server.*
- *Touch the metal on the server chassis before touching the server components.*
- *Keep part of your body in contact with the metal server chassis to dissipate the static charge while handling the components.*
- *Avoid moving around unnecessarily.*
- *Hold the server components (especially boards) only by the edges.*
- *Place the server components on a grounded, static-free surface. Use a conductive foam pad if available but not the component wrapper.*
- *Do not slide the components over any surface.*

## 2.8 Cooling and Airflow

### CAUTION

*For proper cooling and airflow, always install all access covers before turning on the system. Operating the system for longer than five minutes without the covers in place can cause overheating and damage to system components.*

Chapter 3

# Installation

## 3.1 Parts List

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| | |
|---|---|
| A | Appro WH300 Workstation |

**Accessory Kit box contains:**

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| | |
|---|---|
| B | 4x SATA data cable |
| C | 2x SATA power adapter |
| D | 1x system board manual |
| E | 1x system board quick ref. guide |
| F | 1x driver CD |
| G | 1x NVIDIA NVRAID driver disk |
| H | 1x LSI 53C1030 driver disk |
| I | 2x Front bezel keys |
| J | 1x SLI bridge board<br>(Not pictured) |
| K | Power cord (Not pictured) |

## 3.2 Optional Items

Appro WH300 can be ordered with multiple optional components; depending on what options were ordered, your kit may contain some or all of the following:

| Part # | Orderable Qty | Description |
|---|---|---|
| 22501-0001-00 | 0 or 1 | 3.5” 1.44MB Floppy Disk Drive |
| Varies | 1 to 6 | 3.5” Hard Disk Drive (SATA, or SCSI) |
| Varies | 0 or 1 | 5.25” CD/DVD ROM drive |
| Varies | 0 or 1 | 5.25” Tape Back-up drive |
| Varies | 0 or 1 | PCI-Express Graphics Video Card |
| Varies | 0 or 1 | RAID Card |
| 22302-0187-00 | 0 or 1 | 6x hot-swappable SCSI kit |
| 22302-0186-00 | 0 or 1 | 6x hot-swappable SATA kit |

## 3.3 Installing Peripherals

Appro WH300 should come pre-configured per your specific configuration, however Uniwide understands that the owner may want to update or upgrade the product from time to time. These instructions are meant to be helpful guidelines for those of you that wish to upgrade their workstation. Uniwide recommends that the product be returned to uniwide for any significant configuration changes to ensure continued warranty coverage. Please note that if the workstation is opened by non-uniwide certified technician, it can void the product warranty. Please contact Uniwide’s Technical Support prior to making any significant configuration change. Only technically qualified personnel should integrate this assembly.

**Peripherals**

**i) 5.25-inch Removable Media Drive Bays**

The upper bays are designed for removable media peripherals. You can install up to two half-height peripherals.

**ii) 3.5-inch Hard Drive Bays**

The chassis supports up to six drives depending on the power budget. The drives are installed into a removable hard drive bay cage that is located beneath the floppy drive

bay. The hard drive bay cage is not externally accessible.

**iii) Optional 3.5-inch Hot Swap Drive Bay**

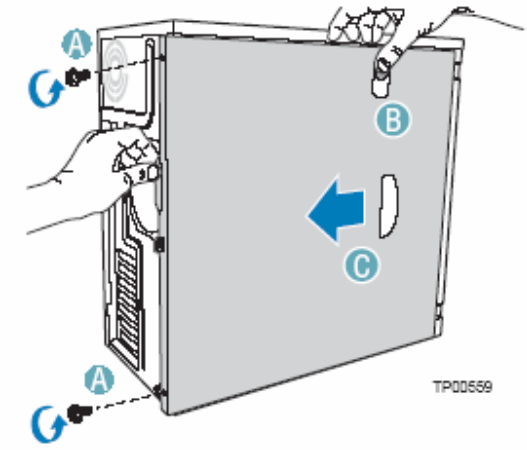
The optional hot swap drive bay upgrade kit supports either up to six 3.5-inch SCSI or six 3.5-inch SATA hot-swap hard drives. Depending on the model chosen, up to six bays are included with the upgrade kit. If no drive is installed in a carrier, a plastic air baffle must be installed to ensure proper hard drive cooling.

The hot swap drive bay accepts 1-inch peripherals that consume up to 18 Watts of power.

### 3.4 Remove the Access Cover

Observe the safety and ESD precautions at the beginning of this manual. Before removing the left side cover, power down the server and unplug all peripheral devices and the AC power cable.

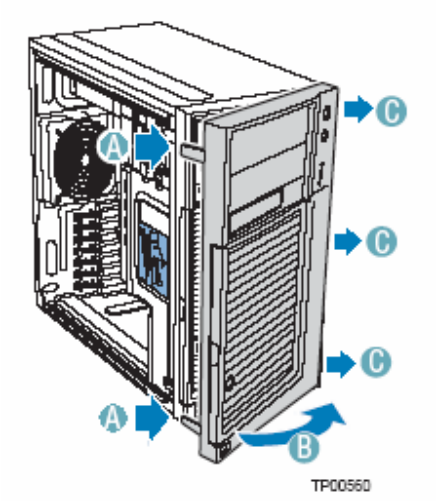
1. If the shipping screws are installed, remove them (letter A in the figure below).
2. Push in on latch with your right hand, and with your left hand, grasp the rear cover clasp.( letter B in figure below)
3. Slide left side cover rearward to remove from chassis (letter C in the figure), Set the cover aside..




### 3.5 Remove the Front Bezel

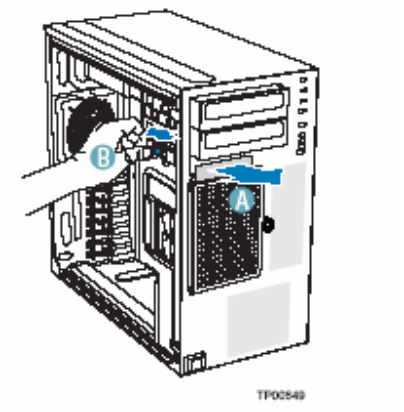
1. Disengage the two bezel tabs from the left side a chassis. See letter A in the figure.
2. Rotate the left side of the front bezel assembly outward slightly. See letter B in the figure.

3. Disengage the three clips that attach the right side of the front bezel assembly to the chassis and remove. See letter C in the figure.



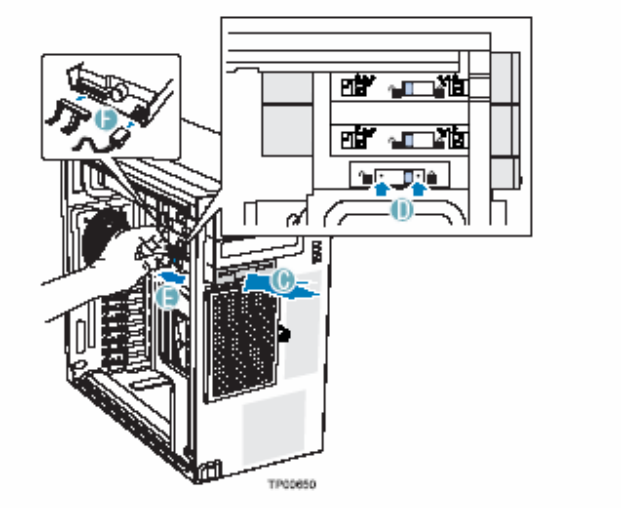

### 3.6 Install a 3.5-inch Floppy Drive

1. Use the finger cutouts on the EMI shield to grasp the shield and remove it from the chassis.
2. Remove the EMI shield from the 3.5-in device drive Bay (letter A in the following figure). Move latch to the “unlock” position (letter B in the figure)..




3. Insert floppy drive into 3.5-inch Device Drive Bay (letter C in the figure)

4. Line up holes in floppy drive with holes in chassis (letter D in the figure). Move latch to the “lock” position (letter E).
5. Connect power (P5 connector from power supply) and data cables to the rear of the floppy drive (letter F in the figure below).




## 3.7 Peripheral Drives

### 3.7.1 Device Installation Considerations

The number of devices you can install depends on:

- The number supported by the bus on your server board and/or add-on controller card
- The number of physical drive bays available
- The combination of SCSI and IDE devices
- The amount of power required by other components in your workstation.

### 3.7.2 IDE Requirements

If no drives are present on an IDE channel, the cable must be removed. If only one drive is installed, it should be connected at the end of the cable.

**NOTE**

***To disable the IDE controller:*** *If you plan to disable the IDE controller to reuse the interrupt for that controller, you must physically unplug the IDE cable from the board connector if a cable is present. Simply disabling the drive*

*by configuring the SSU option does not make the interrupt available.*

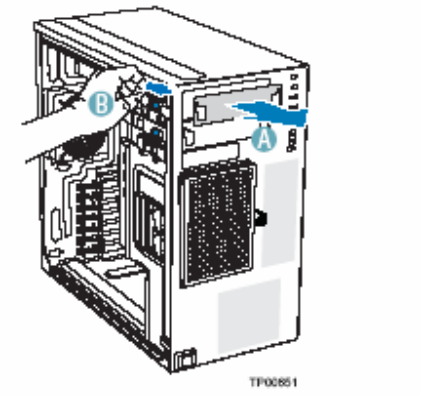
### 3.7.3 Installing a 5.25-inch Removable Media Device

Two 5.25-inch half-height bays provide space for tape backup, CD-ROM, or other removable media drives.

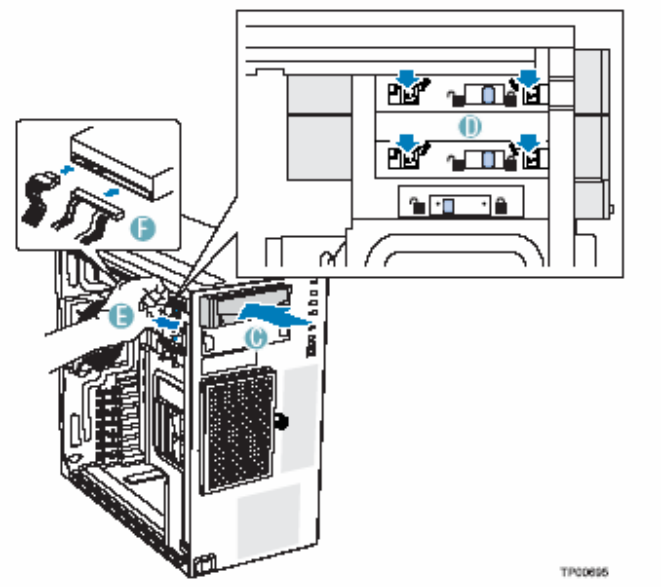
**NOTE**

***Save the EMI shields:*** *EMI integrity and cooling are both protected by having drives installed in the bays or EMI shields covering the bays. When you install a drive, save the shield to reinstall in case you should later remove the drive and not reinstall one in the same bay.*

1. Remove the EMI shield from the 5.25-in device drive bay (letter A in the following figure). Move latch to the “unlock” position (letter B in the figure).




2. Insert CD-ROM or DVD-ROM drive into the 5.25-in device drive bay (letter C in the following figure).
3. Line up holes in CD-ROM drive with holes in chassis (letter D in the figure). Move latch to the “lock” position (letter E in the figure below).
4. Connect power (P3 or P4 connector from the power supply) and data cables to the rear of the CD-ROM or DVD-ROM drive (letter F in the figure).



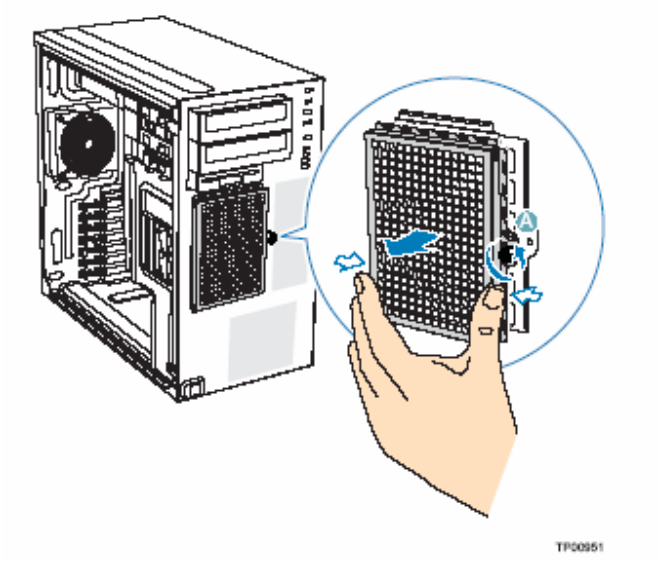
### 3.7.4 Installing 3.5-inch Hard Drive

Six 3.5-inch half-height bays provide space for hard drives.

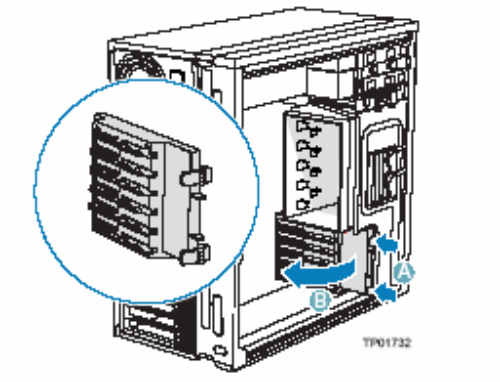
**NOTE**

*The drive bay cage can only be fully populated with six hard drives if the power budget has the capacity for it. Before installing more than four hard drives, calculate the power used by each installed device and compare it to the allowed power budget. Or if uncertain, please consult an Uniwide Technical Support Engineer. When installing more than four drives a Y-cable may be needed for the power connectors.*

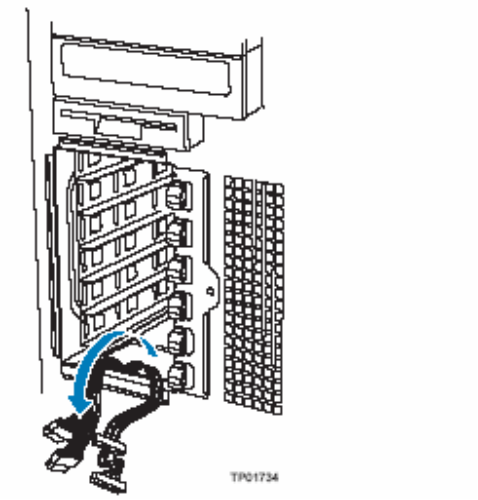
1. Loosen thumb screw and remove the drive cage EMI shield (letter A in the following figure)..



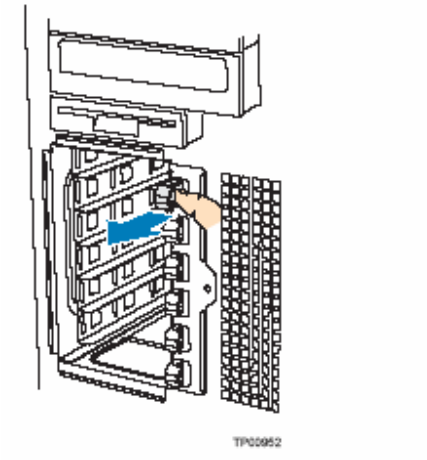

2. Remove any PCI add-in boards that use the PCI card guide.
3. Remove the PCI card guide by pressing in on the blue tabs (letter A in the following figure) and pulling the PCI card guide outward (letter B in the figure).



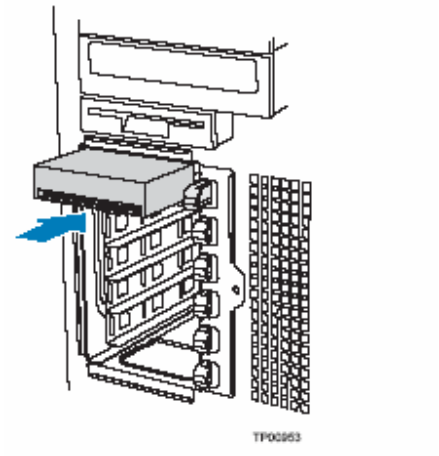

4. Route the required power cables (connectors P8-P13) from behind the PCI card guide through the cable routing area at the bottom of the fixed drive cage..



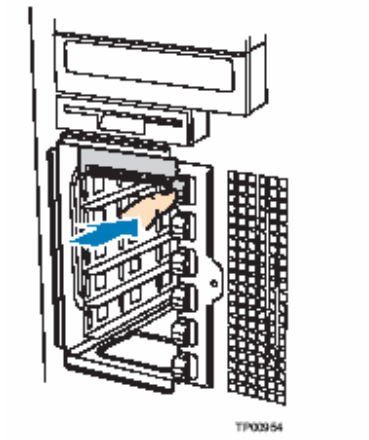
5. Pull the drive latch forward to unlatch the drive locking assembly for the drive bay you want to install a hard drive in..



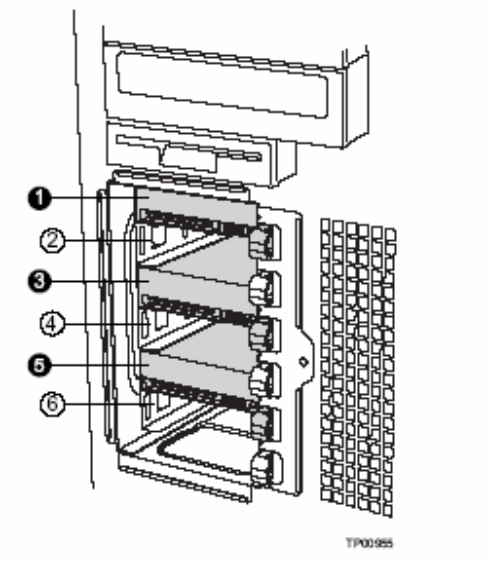
6. Insert fixed hard drive into drive bay and push until it stops. Ensure that the power and data connector end of the hard drive is facing forward..



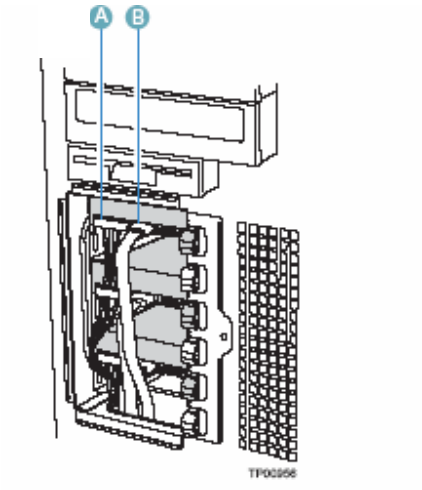
7. Push drive latch in to lock hard drive into drive bay..



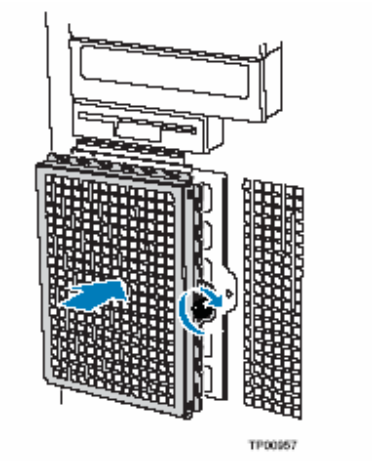
Warning: Drive bay slots 1, 3, and 5 MUST be populated first. Failure to do so could result inthermal issues within the chassis.



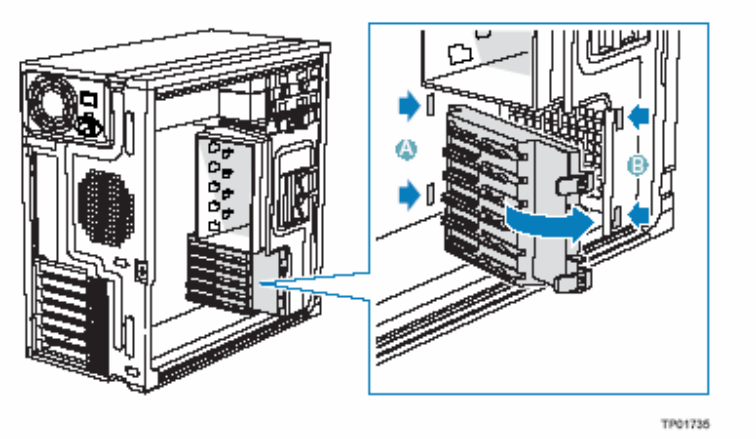

8. Install power (letter A in the following figure) and data (letter B in the figure) cables to each of the installed drives. The cables route through the oval opening at the bottom of the fixed drive cage..




9. Re-attach the drive cage EMI shield to the chassis and tighten the thumb screw.



10. Re-install the PCI card guide. Insert tabs on left side of PCI card guide into slots in chassis (letter A in the following figure). Swing PCI card guide into chassis until right-side blue tabs snap into place (letter B in the figure).



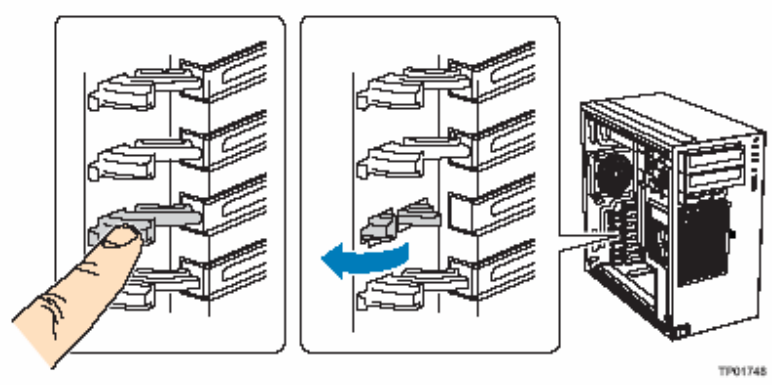
### 3.7.5 Installing an Add-in Board

You may want to install an operating system before installing any add-in boards. If so, skip this step and return to it when you are ready.

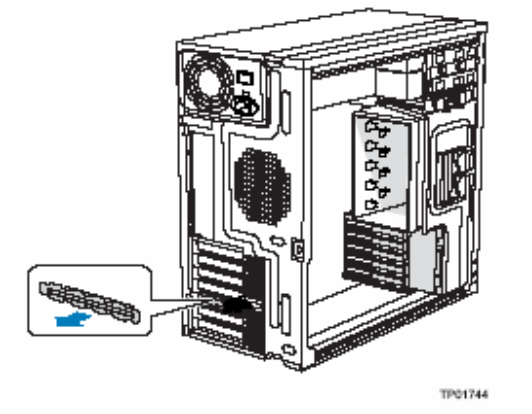
⚠ **CAUTIONS**

*Do not overload the server board by installing add-in boards that draw excessive current.*
*Add-in boards can be extremely sensitive to ESD and always require careful handling. After removing the board from its protective wrapper or from the server board, place it component side up on a grounded, static free surface or conductive foam pad if available. Do not slide the board over any surface.*

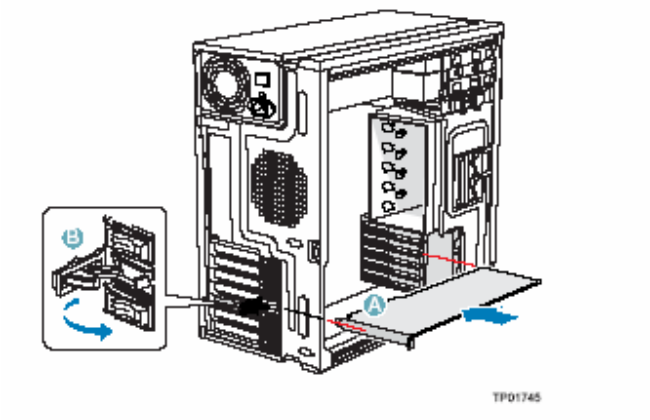
1. Open the back panel PCI Add-in Card Retention Device by pressing open from the inside of the chassis.



2. Remove the PCI slot shield, if it has not already been removed, by pushing the shield out from the inside of the chassis.



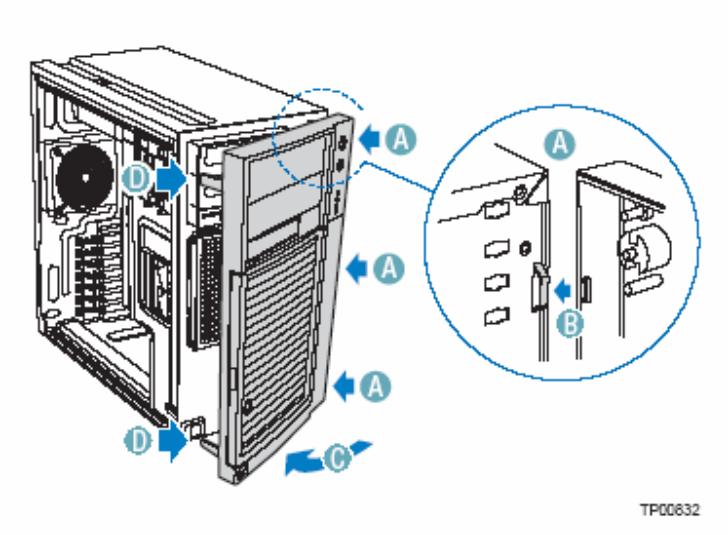

3. Remove a PCI add-in board from its protective wrapper. Be careful not to touch the components or gold-edge connectors. Place board on an anti-static surface. Record the type and serial number of the add-in board in your equipment log. Set jumpers or switches on the board according to the manufacturer's instructions..
4. Hold the PCI add-in board by its top edge or upper corners. Firmly press the add-in board into an expanision slot on the server board (letter A in the following figure). Close the back panel PCI Add-in Card Retention Device (letter B in the figure).




5. Repeat the previous steps until all PCI add-in boards are installed.
6. Attach cables, if necessary.

### 3.8 Install the Front Bezel

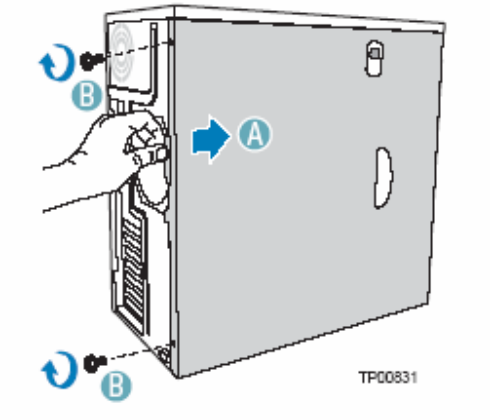
1. Line up the three clips on the right-side of the front bezel assembly with the corresponding slots on the right-side of the chassis (letter A in the following figure).
2. Engage the clips with the slots . See letter B in the figure.
3. Rotate the left side of the the front bezel assembly towards the chassis. See letter C in the figure.
4. Snap the two bezel tabs into the corresponding recesses at the left edge of the chassis front panel. See letter D in the figure




### 3.9 Install the Access Cover

Warning: This chassis must be operated with the left side cover installed to ensure proper cooling.

1. Slide the left side cover on the chassis and latch securely (see letter A in the following figure).
2. Replace screws (see letter B in the figure).


B
A
B
TP00831

Chapter 4

# WH300 Maintenance

**Replacing Fans**

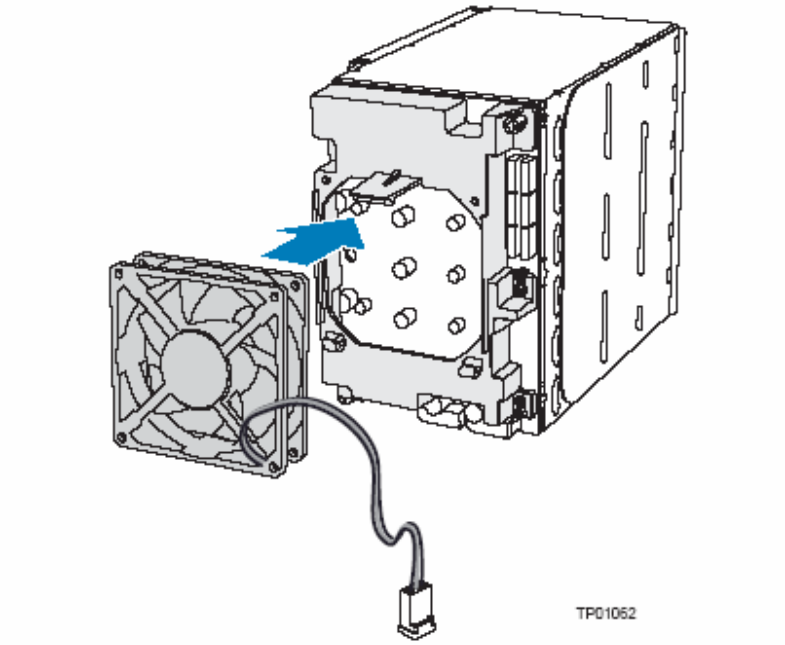
The chassis contains two replaceable system fans. The power supply fan(s) are not replaceable. Your replacement fan should be the same size and type as the fan you are removing.

## 4.1 Replacing a Front System Fan

### 4.1.1 Hot-Swap Drive Bay

When the hot-swap drive bay is installed, the front system fan is located on the hot-swap drive bay.

1. Remove the left access cover.
2. Disconnect the fan cable from the server board.
3. Remove the system fan from its snap-in bracket by pressing the two bracket tabs outward
4. Attach the fan to the fan bracket by placing two corners of the fan into the two holding slots on the fan bracket. Press the fan into the fan bracket until is clicks into place.

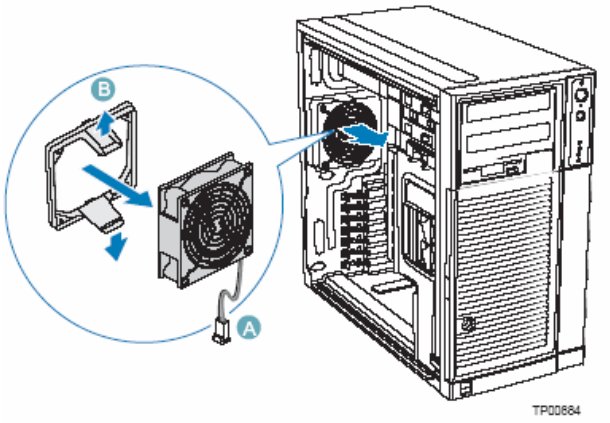



Caution: Ensure that the label and directional airflow arrow on fan are pointed out (away from the backplane).

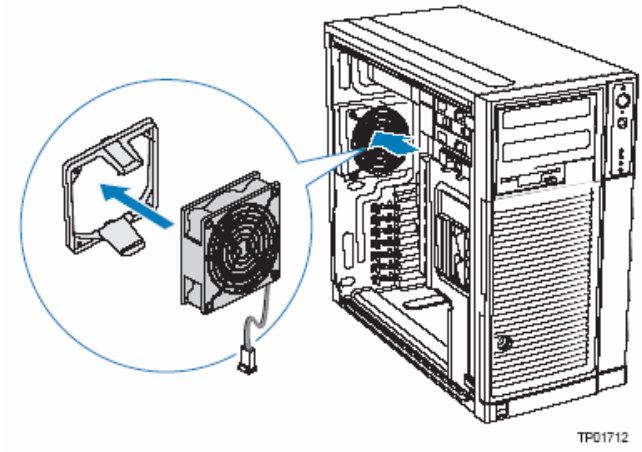
5. Connect the fan cable to the server board.
6. Replace the access cover.

## 4.2 Replacing a Rear System Fan

1. Remove the left side cover.
2. Disconnect the fan power cable from the server board (see letter A in the following figure).
3. Remove the system fan from its snap-in bracket by pressing the two bracket tabs outward (see letter B in the figure).




4. Install the new system fan in the snap-in bracket.




5. Reconnect the fan cable to the server board.
6. Install the left side cover.

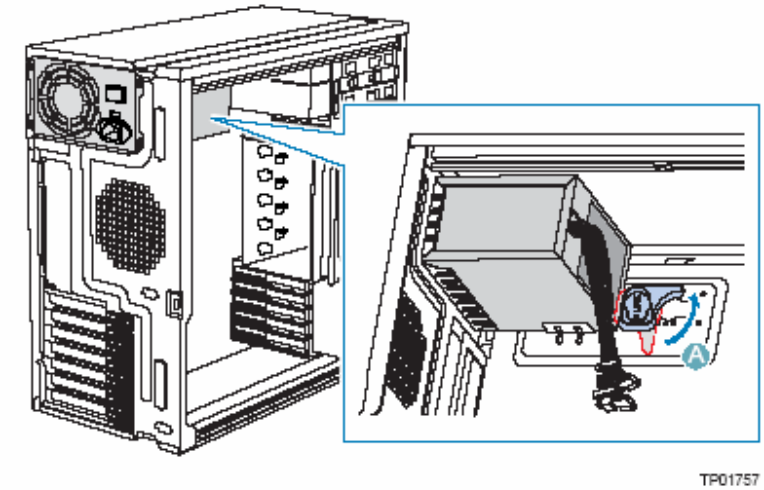
## 4.3 Replacing the Power Supply

### WARNINGS

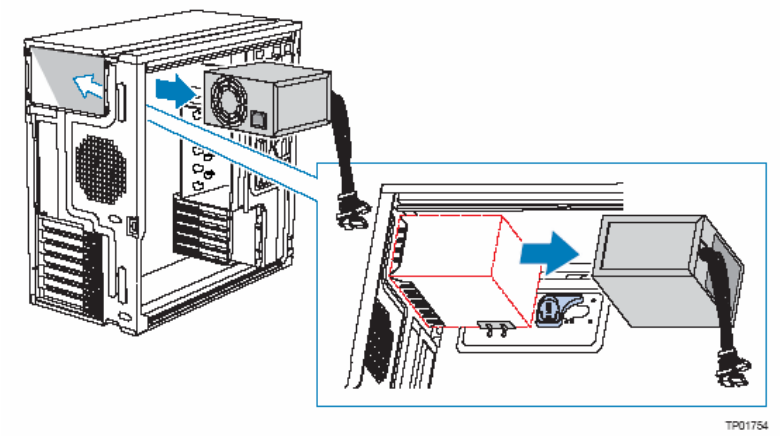
***Hazardous conditions, power supply: Hazardous voltage, current, and energy levels are present inside the power supply. There are no user-serviceable parts inside it; servicing should be done by technically qualified personnel.***

To replace the power supply:

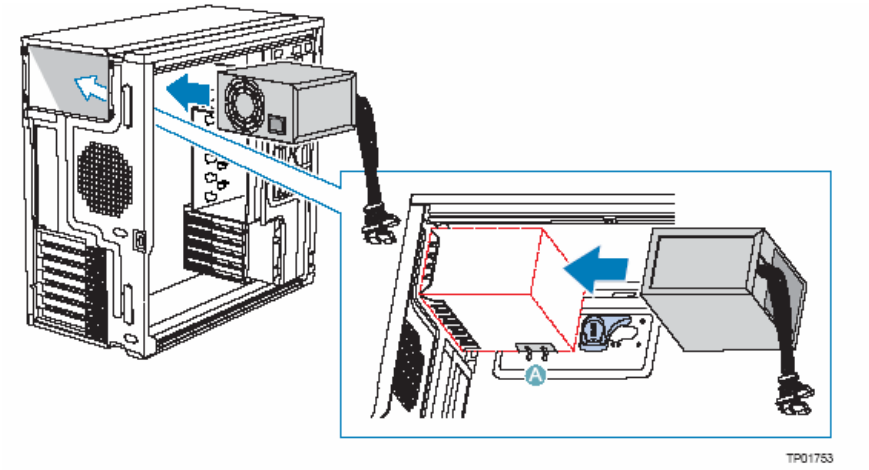
1. Disconnect the A/C power from the power supply.
2. Remove the left access cover.
3. Disconnect all of the power cables inside the chassis.
4. Rotate the blue locking mechanism (see letter A in the following figure to the open position).



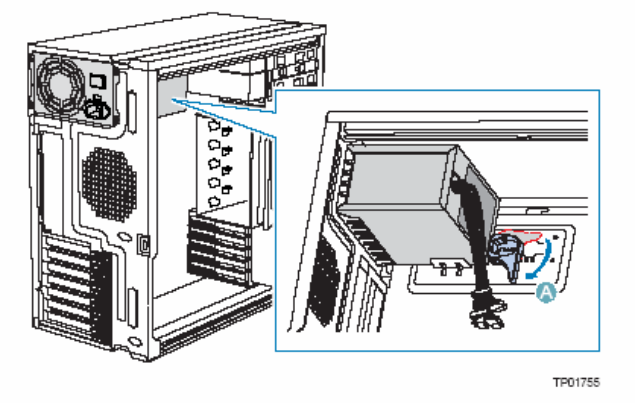

5. Once the fixed power supply is loose, push the power supply against the blue locking mechanism and then lift the power supply out of the chassis.




6. Insert new fixed power supply in chassis. Ensure that the blue locking mechanism is still in the open position. Make sure that the new fixed power supply rests on the small metal shelf on the side wall of the chassis (see letter A in the following figure).




7. Rotate the blue locking mechanism to the locked position (see letter A in the following figure).

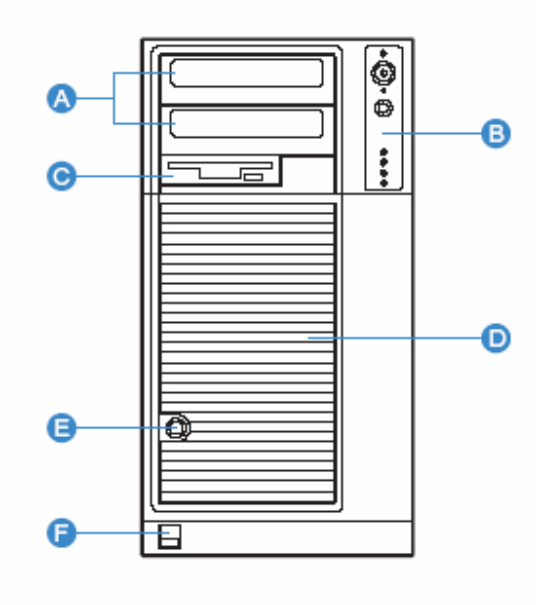



8. Connect the power cables to the server board and peripherals.
9. Replace the access cover.
10. Connect the A/C power to the power supply.

Chapter 5

# WH300 Architecture

## 5.1 Appro WH300 front view




A. 5.25-inch removable media drive bays

B. Front panel controls and indicators

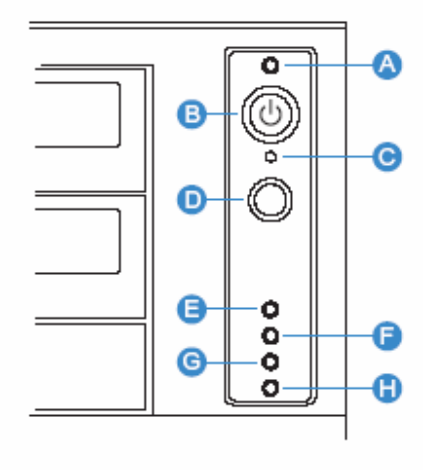
C. 3.5-inch removable media drive bay

D. Internal hard drive bay cage (behind door)

E. Security lock

F. USB port

## 5.2 Front Panel Controls and Indicators




A. Power LED

B. Power button

**C. NOT USED**

D. Reset button

**E. NOT USED**

**F. NOT USED**

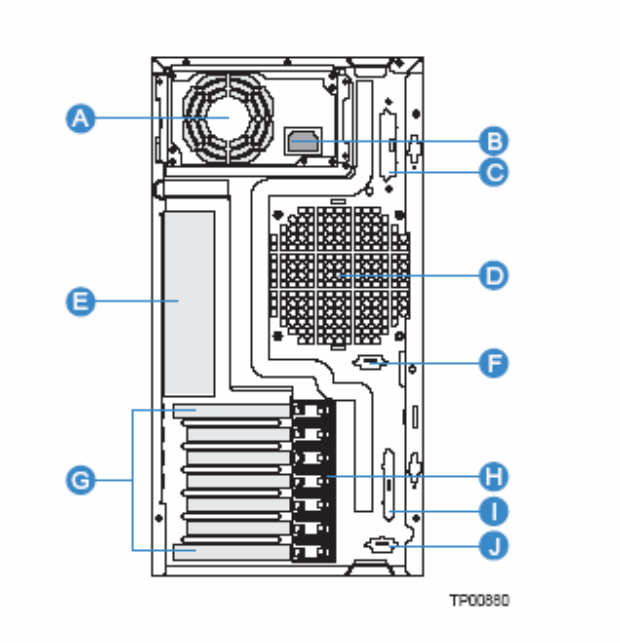
G. Hard drive activity LED

**H. NOT USED**

### LED Description

| LED Name | Color | Condition | Description |
|---|---|---|---|
| Power LED | Green | ON | Power on |
| | | OFF | Power off |
| Hard Drive activity | Green | BLINK | Hard drive activity |
| | | OFF | No activity |

## 5.3 Appro WH300 rear view




A. Power supply

B. AC input power connector

C. Alternate external SCSI knockout – **NOT USED**

D. Fan

E. I/O ports

F. Alternate Serial B port knockout – **NOT USED**

G. PCI Add-in Card slots

H. PCI Tool-less Card Retention Mechanisms

I. External SCSI knockout – **NOT USED**

J. Serial B port knockout – **NOT USED**

Appendix A

# Power Supply Specifications

### 600Watt Single Power Supply Input Voltages
### 600 Watt Power Supply

- 100-127 V~ at 50/60 Hz; 10 A max.
- 200-240 V~ at 50/60 Hz; 5 A max.

### 600W Single Power Supply Output Voltages
### 600 Watt Power Supply

The table below lists the total wattage available from the power subsystem for each voltage. If you configure your system heavily, ensure that your loads do not exceed the combined total wattage of 600 Watts..

**Power Supply System Output Capability**

| Voltage | Maximum Current |
|---|---|
| +3.3 V | 20 A |
| +5.0 V | 24 A |
| +5 V Standby | 2 A |
| +12.0 V | 43 A |
| –12.0 V | 0.5 A |

⚠ **CAUTION**

*Do not exceed a combined power output of 300 Watts for the +5 V and +3.3 V outputs. Exceeding a recommended power output may cause power supplies to overheat and malfunction.*

The expansion slots on the server board are rated for no more than 25 Watts for any one slot. The average current usage per slot should not exceed 13 Watts.

Appendix B

# System Environmental Specifications

## Environmental Specifications

| | |
|---|---|
| Temperature | |
| Non-operating | –40 ° to 70 °C. |
| Operating | 5 ° to 35 °C; derated 0.5 °C for every 1000 ft (305 m) to a maximum of 10,000 ft. |
| Humidity | |
| Non-operating | 95% relative humidity (non-condensing) at 30 °C. |
| Shock | |
| Operating | 2.0 g, 11 msec, 1/2 sine |
| Packaged | Operational after an 18” free fall. |
| Acoustic noise | 50 dBA in a typical office ambient temperature (65-75 °F). **Your selection of peripherals may change the noise level.** |
| Electrostatic discharge (ESD) | Tested to 15 kilovolts (kV); no component damage. |

Appendix C

# Contacting UNIWIDE

### How to Obtain Warranty Service

To obtain warranty service for this product, please contact UNIWIDE.

**Korea –** Call uniwide at 82-31-450-0505 during the warranty period during normal business hours (Pacific Time), excluding holidays. Please be prepared to provide: (1) Organization name, your name, address, and telephone numbers; (2) model name and serial number of the Product; (3) an explanation of the problem. The customer service representative may need additional information from you depending on the nature of the problem.

**Outside of Korea –** Call 82-31-450-0556

### Returning a Defective Product

Before returning any product, call the RMA department at Appro. If the Customer Support representative verifies that your product is defective, you will receive a Return Merchandise Authorization(RMA) number to place on the outer package of the product. Uniwide cannot accept any product without an RMA number on the package.

**Technical Support**
**Phone: 82-31-450-0505**
**Fax: 82-31-450-0529**

For the latest Statement of Limited Warranty, please visit Uniwide's website at

**http://www.uniwide.co.kr/support/main.php3**